Energy and Energy Access
NORTHEAST INDIA
The Northeast region of the country has a total installed capacity of 3,550.02 mega-watts (MW) for electricity generation. Fossil fuels—gas, coal and diesel—capacity combined contributes to 57.6 per cent of the installed capacity. According to the Central Electricity Authority, there is currently a gap of 4.7 per cent between the requirement and availability of electricity in the region. In terms of per capita consumption, the average for the Northeast region is around 300 units per person per year, whereas the national average is around 914 units per person per year. This depicts the disparity in the development of the region and the below par extent of access.

Electricity mix in Northeast region as on 31 May 2016

Source: Central Electricity Authority – Executive Summary May 2016
Per capita consumption of electricity in 2012–13

Source: Central Electricity Authority—Executive Summary May 2016
Electricity Access

According to the Census 2011, there are roughly 4.85 million households—53 per cent of the total number—that do have access to electricity in the region. The rate of electrification is the worst in Assam, with only 37 per cent of households using electricity for lighting purposes; and best in Mizoram, where 84 per cent of households are using electricity.

Rate of electrification in the Northeast

![Graph showing the rate of electrification in the Northeast for various states: Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura. Assam has the lowest rate at 37.05%, while Mizoram has the highest at 84.20%.](Source: Census 2011)

Status of village electrification under Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

![Bar chart showing the number of electrified and unelectrified villages in the Northeast. Arunachal Pradesh has the highest number of electrified villages, while Assam has the highest number of unelectrified villages.](Source: GARV Dashboard)

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Wind power has not been developed in the Northeast of the country at all, even though the region has 300 to 500 MW of potential at even the low hub heights of 50 and 80 metres respectively.

Indicative installable potential of wind power at various hub heights

Note:
Both Mizoram and Tripura do not have any reported potential for wind. Wind potential has yet to be validated with measurements.

Source: MNRE Annual Report, 2015-16
SMALL HYDROPOWER (SHP)

SHP is the most exploited renewable source of power in the Northeast. In total, SHP accounts for 257.35 MW of installed capacity, or 98 per cent of the renewable energy, installed in the region. According to MNRE, the region has a potential to install 2.3 giga-watts (GW) of SHP plants in around 1,200 sites with the maximum potential in Arunachal Pradesh.

Potential and achievement of small hydropower in the region

Source: MNRE Annual Report, 2015-16
Solar power is the most underutilized source of renewable energy in the Northeast. The region has a combined potential for installation of almost 60 GW of solar power. It currently has installed only 5.27 MW of capacity, primarily in Tripura under the Renewable Energy Certificate Scheme.

Potential of solar power in the region (in Giga-watts)

Source: Ministry of New and Renewable Energy
Achievement of solar power in the region

Source: Compiled from various sources

Target for solar power in the region out of the 100 GW all-India target

Source: Compiled from various sources
Arunachal Pradesh is one of the few states in India whose electricity sector is dominated by renewable energy—large and small hydro. Fossil fuels only contribute 22 per cent to the total installed capacity. Although the state claims that there is only a 2.8 per cent deficit in availability of power, there are around 85,000 households that either have no electricity or depend on kerosene for lighting needs, 97 per cent of whom are in rural Arunachal Pradesh.

Electricity mix in Arunachal Pradesh as on 31 May 2016

Source: Central Electricity Authority—Executive Summary, May 2016
Sources of lighting

Source: Census 2011
The electricity sector in Assam is dominated by fossil fuels—gas and coal together contribute almost two-third of the installed capacity for electricity in the state. Renewable energy, like most states in the region, refers only to SHP plants. Not only has Assam one of the highest deficits in availability of power in the country, it is also one of the poorest in terms of electrification. According to Census 2011, only 37 per cent of the state is electrified.

**Electricity mix in Assam as on 31 May 2016**

- **Gas**: 718.62 MW (52%)
- **Hydro**: 429.72 MW (31%)
- **Coal**: 187.00 MW (14%)
- **Renewable Energy**: 34.11 MW (3%)

*Source: Central Electricity Authority—Executive Summary, May 2016*
Sources of lighting

Source: Census 2011
Being one of the smallest states in the country, the installed capacity for power generation is also small—around 206 MW in total. Surprisingly, it is the only state in the region that consumes 36 MW worth of power produced from diesel. In India, most of the consumption of diesel for power generation is in the south and the islands. Renewable energy refers only to SHP plants even though Manipur is also the only state in the region that has a solar policy. The state has performed relatively well in terms of electrification, almost 70 per cent of households have access to electricity.

**Electricity mix in Manipur as on 31 May 2016**

Source: Central Electricity Authority—Executive Summary, May 2016
Sources of lighting

Source: Census 2011
Meghalaya

Meghalaya is the only state in the region that draws 70 per cent of its electricity from large hydro (of installed capacity more than 25 MW). It is also the only state that has no deficit or surplus in terms of availability and requirement of electricity, even though the state is only 60 per cent electrified. Renewable energy, like most states in the region, refers only to SHP plants.

Electricity mix in Meghalaya as on 31 May 2016

Source: Central Electricity Authority—Executive Summary, May 2016
Sources of lighting

Source: Census 2011
Mizoram is the state that has done the best in terms of electrification in the region, it provides electricity to almost 85 per cent of its households, with a total installed capacity of only 120 MW. Renewable energy, like most states in the region, refers only to SHP plants.

Electricity mix in Mizoram as on 31 May 2016

Source: Central Electricity Authority—Executive Summary, May 2016
Sources of lighting

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Source: Census 2011
One of the smallest states in the country, Nagaland has a total installed capacity of 141 MW. Renewable energy, like most states in the region, refers only to SHP plants. The state has an untapped potential to harness seven GW of solar power. The state provides electricity to almost 80 per cent of its households; only 73,560 households do not have access to electricity in the state.

Electricity mix in Nagaland as on 31 May 2016

- **Gas**: 46.35 MW (33%)
- **Hydro**: 53.32 MW (38%)
- **Renewable Energy**: 30.67 MW (22%)
- **Coal**: 10.70 MW (7%)

Source: Central Electricity Authority—Executive Summary, May 2016
Sources of lighting

Source: Census 2011
Tripura is heavily dependent on natural gas for its electricity generation—almost 85 per cent of its installed capacity uses natural gas. It is also the only state in the region that has installed five MW of solar power under the REC scheme. In terms of electrification, it fares in the middle range, with almost 70 per cent of households having access to electricity.

Electricity mix in Tripura as on 31 May 2016
Sources of lighting

Source: Census 2011

Number of households

- Total
- Rural
- Urban

Source: Census 2011